

No. 622,910.

Patented Apr. 11, 1899.

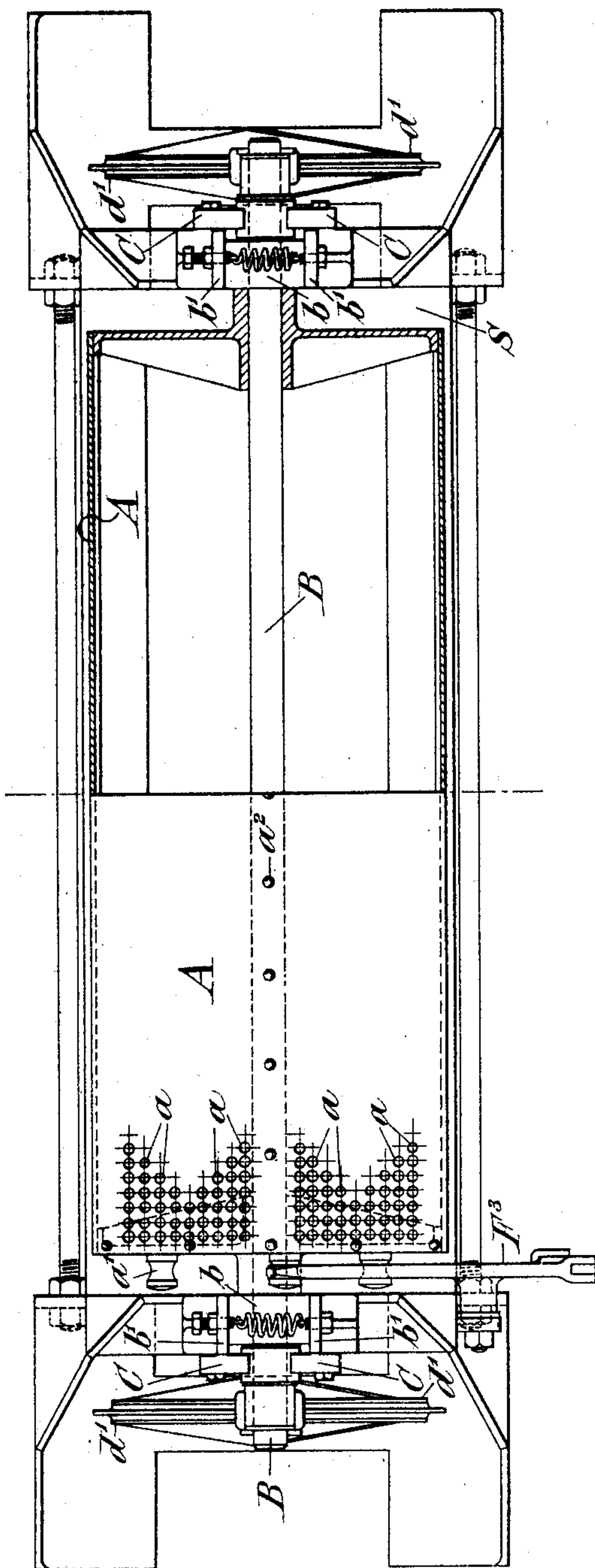
W. T. BELL.
ELECTRICALLY ILLUMINATED ADVERTISING SIGN.

(Application filed Feb. 2, 1898.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 2.



Witnesses.
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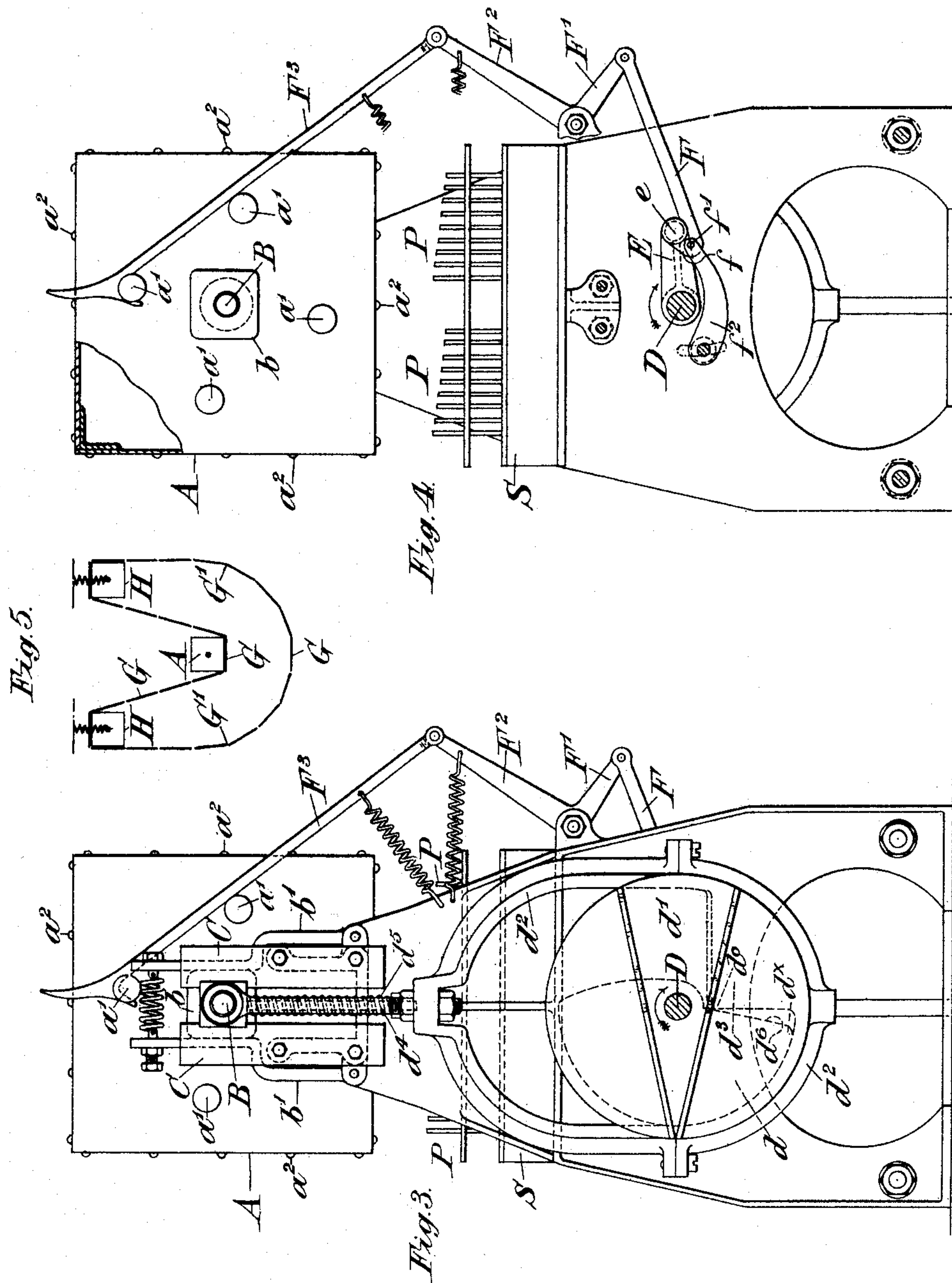
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UNITED STATES PATENT OFFICE.

WILLIAM THOMSON BELL, OF NOTTINGHAM, ENGLAND.

ELECTRICALLY-ILLUMINATED ADVERTISING-SIGN.

SPECIFICATION forming part of Letters Patent No. 622,910, dated April 11, 1899.

Application filed February 2, 1898. Serial No. 668,789. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM THOMSON BELL, a subject of the Queen of Great Britain and Ireland, residing at 69 Henry road, Nottingham, England, have invented new and useful Improvements in Electrically-Illuminated Signs, Advertising Media, or the Like, (in respect whereof I have applied for a patent in Great Britain to bear date July 8, 1897, No. 16,220, and have been granted a patent in France, No. 273,859, dated January 7, 1898,) of which the following is a specification.

This invention relates to illuminated signs, advertising media, or the like in which the letters, words, or other devices exhibited are depicted by a number of incandescent electric lamps.

In the accompanying drawings, Figure 1 is an elevation of a form of apparatus adapted for carrying my invention into effect. Fig. 2 is a corresponding plan. Fig. 3 is a view of the left-hand end of Fig. 1. Fig. 4 is a vertical section on the line 4 4 in Fig. 1. Fig. 5 is a diagrammatic view illustrating a method of automatically feeding the pattern-cards to the pattern-card cylinder.

In carrying out my invention a number of lamps, preferably incandescent electric lamps, of suitable power are arranged equidistantly from each other on a suitable foundation. The lamps may be arranged in horizontal and vertical rows, in horizontal and diagonal rows, or in any other desired order. Each lamp is separately wired to the main conductors, a suitably-constructed switch being placed at any convenient point in the wire with a view to effecting the switching "on" or "off" of the lamps independently of one another. The switch may be in the form of a contact-pin, which at each depression causes a toothed wheel to advance one tooth, the toothed wheel in turn operating switch mechanism arranged to effect the opening and closing of the lamp-circuit at each alternate tooth. Although I have mentioned the above form of switch, I do not confine myself to any particular construction, and therefore I have not considered it necessary to illustrate the same.

Any electrician familiar with the installation of incandescent lamps will be able with

the exercise of his ordinary skill to fit up the lamps, switches, &c.

The switches are arranged as close together as possible on a suitable foundation. They may be in any desired order; but for convenience I dispose them, as far as possible, in the same order as that of the lamps.

If the several contact-pins pertaining to a group of lamps which in combination form the outline of a letter or of letters or of a word or device be depressed, the said lamps will be illuminated and the letter, word, or device be exhibited in luminous spots.

The above-described arrangement of the lamps affords means for producing any letter, word, or device, or combinations thereof, in one apparatus, and the exhibits may follow each other in rapid succession.

I will now describe my invention with reference to the accompanying drawings, which represent apparatus for automatically producing rapid changes in the letters, words, or devices exhibited, for which purpose I employ jacquard mechanism for depressing the contact-pins of particular groups of switches, same comprising a pattern-card cylinder A, mounted on a shaft B, the latter working in vertical guides C C. The shaft is furnished with squared collars $b\ b$, which work between spring-bars $b' b'$. The cylinder A, which is here shown as rectangular, is provided on each side with perforations $a\ a$, corresponding in number and position with the contact-pins P on the switchboard S. The cylinder carrying the required pattern-card is caused to descend by means of a cam d , arranged between two circular plates $d' d'$ on the driving-shaft D, the cam being embraced by a stirrup or strap d^2 , having an inwardly-projecting portion d^3 for engaging the major portion of the cam. The strap d^2 is connected with the extremity of the cylinder-shaft B by means of the rod d^4 . Upon the rotation of the shaft D in the direction of the arrow, Fig. 3, the cam d revolves and effects the downward movement of the strap d^2 , and consequently the shaft B, with the pattern-card cylinder A, is drawn down. The return movement of the cylinder A is effected by means of the springs $d^5 d^5$, the cylinder commencing to rise when the part of the cam d arrives at the point

d^0 of the projection d^3 . The too sudden rising of the cylinder is prevented by the tangential portion d^6 of the cam.

The rotation of the cylinder A is effected
5 by means of an arm E, fast on the shaft D, and a pin e at the outer end of said arm, the pin engaging with a projection f on the link F. This link is pivoted at one end to the shorter arm F' of a bell-crank lever, the longer arm
10 F^2 of which is under the influence of a tension-spring and carries a dog or catch-arm F^3 for engaging with one or other of the projections $a' a' a' a'$ on the end of the cylinder A. The link F is pivotally connected at f' with
15 an adjustable arm f^2 , whereby its movement is controlled and regulated. This swinging arm f^2 forms a continuation of the link F with a knuckle or joint at f' , and the pivotal end of the arm f^2 is capable of vertical adjustment, as indicated in Fig. 4. As seen in Fig.
20 4, the arm E deflects the link F, drawing down the longer arm F^2 of the bell-crank lever, this movement causing the dog F^3 to exert a pull on the pin a' , thereby rotating the
25 cylinder a quarter of a revolution and bringing another side of the cylinder opposite the contact-pins on the switchboard, the squared collars $b b$, in conjunction with the spring-controlled bars $b' b'$, preventing overturning
30 of the cylinder.

In order to depress the contact-pins, full portions are left in the pattern-cards carried by the cylinder A at the required points, while the remaining portions are perforated
35 to permit the free entry of the contact-pins or switches pertaining to the lamps for the time being not required.

The length of time each letter, word, or device is exhibited is determined by the arrangement of the machine or "jacquard" and the
40 speed at which it is run, same being regulated according to requirements.

The jacquard mechanism may be driven by an electric motor connected with the shaft D
45 by any suitable gearing.

If desired, the cards G may be arranged on a flexible band or bands G' , (see Fig. 5,) passing over cylinders H H, suspended by suitable yielding supports, which may be con-
50 nected with the ceiling or roof, and also passing beneath the card-cylinder A, the latter being provided with pins $a^2 a^2$ for engaging the band or bands and preventing slip. These pins also serve the purpose of a register for
55 insuring the accurate adjustment of the cards upon the drum or cylinder A, which latter is, in fact, a drum of square or polygonal cross-section with perforated faces to receive the pattern-cards and form carriers for the latter.

60 What I claim as my invention, and desire to secure by Letters Patent, is—

1. An apparatus for operating electrically-illuminated signs and the like, comprising as

its essentials a switchboard provided with a series of depressible contact-pins, one for 65 each lamp, a jacquard pattern-card having in it apertures which register with a part only of the said contact-pins, a carrier for said pattern-card adapted to be moved toward and from said switchboard, said carrier having 70 apertures registering with all of the contact-pins, and means for moving said carrier and guiding it in its movements, substantially as set forth.

2. In an apparatus for operating electrically-illuminated signs and the like, the combination with a stationary switchboard having a series of depressible contact-pins, one for each lamp, a rotating drum mounted in sliding bearings whereby it may be moved to- 80 ward and from said switchboard, said drum having in its several faces apertures registering with the contact-pins, the frame with sliding bearings for the drum, mechanism for moving the drum to and fro and rotating it 85 intermittently, and a jacquard pattern-card on the face of the drum, said card having apertures registering with a part of the contact-pins and the coincident apertures in the drum-face, substantially as set forth. 90

3. In an apparatus for operating electrically-illuminated signs and the like, the combination with the rotatively-mounted card-carrying drum, the stationary switchboard provided with depressible contact-pins, and 95 means for moving said drum up to and away from said switchboard, of the mechanism for intermittently rotating said drum, comprising the main shaft, the arm E thereon, the bell-crank, the spring-controlled dog F^3 , coupled 100 to one arm of said crank and engaging projections on the end of the drum, the adjustable arm f^2 , and the link F, connecting said arm with the arm F^2 of the bell-crank, substantially as set forth. 105

4. In apparatus for operating electrically-illuminated signs and the like, the combination with a stationary switchboard having a series of depressible contact-pins, the inter- 110 mittently-rotating, card-carrying drum having apertures in each of its faces which register with the contact-pins in the switchboard, and means for moving said card-carrying drum toward and from the switchboard, of a series of pattern-cards connected in an end- 115 less series or chain extending about said drum, said cards having each apertures less in number than those in the drum-face and registering with apertures in said face, whereby the interposition of a pattern-card causes the de- 120 pression of certain of the contact-pins, substantially as set forth.

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Witnesses:

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